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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/006,044 | 12/04/2001 | Gilbert C. Sih | 010264 | 9617 |

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QUALCOMM INCORPORATED
5775 MOREHOUSE DR.
SAN DIEGO, CA 92121

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| EXAMINER |
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NGUYEN, HAU H

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| ART UNIT | PAPER NUMBER |
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2628

DATE MAILED: 10/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/006,044 | SIH ET AL. | |
| | Examiner | Art Unit | |
| | Hau H. Nguyen | 2628 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) 6,21,22,27 and 36 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5,7-20,23-26,28-35,37 and 38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The Applicant's arguments in the Appeal Brief filed on May 8, 2006 has been fully considered and persuasive. The final rejection has been withdrawn. However, upon further consideration, a new ground of rejection is made as below.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-5, 7, 9-15, 17-20, 23-26, 28-35, 37 and 38 rejected under 35 U.S.C. 102(e) as being anticipated by Sita et al. (U.S. Patent No. 6,301,299).

As per claim 1, Sita et al. teach a memory having linearly addressable storage units to store video data (Figs. 2A, 2C, numeral 212, col. 5, ll. 51-62); and a programmable video direct memory access controller (Fig. 2C, numeral 214) to access the storage units of the memory in response to a command specifying a multidimensional block of video data (col. 5, line 63 to col. 6, line 13) and fetch the multidimensional block of video data from multiple non-contiguous rows of the memory in response to the command (Figs. 6A-6C, col. 15, lines 23 through col. 16, line 20, and col. 17, ll. 17-22, and also disclosed with reference to Fig. 10).

As per claim 2, Sita et al. teach the command specifying a number of rows and a number of columns for the block of video data (col. 23, ll. 18-50).

As per claims 3, Sita et al. teach the command specifying a jump parameter indicating the number of storage units between each row of the video block (col. 23, ll. 18-50).

As per claim 4, Sita et al. teach copying video data from the memory (212) to a destination memory (234, Fig. 2B) (col. 23, line 18 to col. 24, line 3, and col. 13, lines 47-48).

As per claim 5, Sita et al. further teach specifying a starting address of video data in the video block in the memory and in destination memory (col. 26, ll. 42-50).

As per claim 7, Sita et al. teach a processor 216 issue commands to the VDMA controller 214 via a first bus; and a digital signal processor 218 issue commands to the VDMA controller via a second bus (Fig. 2A).

As per claim 9, Sita et al. disclose receiving a direct memory access command as cited above, from a processor 218 to transfer a multidimensional block of video data (macroblock), and further teach generating a set of source addresses and a set of destination addresses for the multidimensional block of video data in response to the command, wherein the set of source address correspond to multiple non-contiguous rows of a source memory (212) (as also cited above), and copying video data from the source memory (212) to a destination memory (234, Fig. 2B) according to the source addresses and destination addresses in respond to the command (col. 23, line 18 to col. 24, line 3, and col. 13, lines 47-48).

As per claim 10, as cited above, Sita et al. teach the source and destination memories each have linearly addressable storage units.

As per claim 11, as cited above, Sita et al. teach the command specifies a number of rows and a number of columns for the block of video data, and generating a set of addresses comprises

Art Unit: 2628

calculating the source addresses and destination addresses as a function of the number of rows and the number of columns (col. 23, ll. 18-50, with reference also to Fig. 22, col. 26, ll. 42-50).

As per claim 12, Sita et al. also teach the command specifies a jump parameter (an offset) indicating the number of addresses between each row of the video block, and generating a set of addresses comprising calculating the source address and destination address as a function of the jump parameter (col. 23, ll. 18-50).

As per claim 13, Sita et al. further teach specifying a starting address of video data in the source memory and in destination memory (col. 26, ll. 42-50).

Claim 14, which is similar to claim 9, is thus rejected under the same rationale.

Claim 15, which is similar to claim 7, is thus rejected under the same rationale.

As per claims 17 and 18, which includes portions of claims 1 and 9, is discussed above, further requires a first memory to store a candidate video block to be encoded (such as reference block 122 as shown in Fig. 1E, col. 7, ll. 42-60), and a second memory to store a set of video data blocks (or a complete video frame) (Fig. 11), and a differential calculator to calculate differential metrics between the candidate video block and the set of video data block (e.g. calculating motion compensation, col. 24, ll. 17-34).

As per claim 19, Sita et al. teach an address generation logic (address generator 256) to read the candidate video data block from the first memory (as cited above, and col. 17, ll. 17-22), and one or more video blocks of the set of video data blocks from the second memory (Fig. 10 and 11).

As per claim 20, Sita et al. further teach the differential calculator reads the candidate video block from the first memory and one or more video blocks of the set of video blocks from the second memory in parallel (col. 3, ll. 13-23).

Claims 23-26, and 28, which are similar in scope to claims 2-5, and 7, are thus rejected under the same rationale.

As per claim 29, Sita et al. teach the differential calculator calculates the differential metrics (based on the motion vector) in response to search commands, and each search specifying a multidimensional region of video data (reference macroblock) stored with the second memory (col. 25, ll. 36-65).

As per claim 30, Sita et al. teach a command buffer to store the search commands and deliver the search commands to the differential calculator (as cited above, and col. 14, ll. 44-46).

Claims 31-35, and 37-38, which are similar in scope to claims 9-16, are thus rejected under the same rationale.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sita et al. (U.S. Patent No. 6,301,299)

As per claims 8 and 16, Sita et al. teach the motion estimation unit 314 (Fig. 3A) copying video data from memory 212 in response to the command. Sita et al. also teach the retrieved data

Art Unit: 2628

can be stored in a cache in memory interface 240 (col. 6, ll. 2-4). Thus, it would have been obvious one skilled in the art to utilize the method as taught by Sita et al. to include the cache in the motion estimation unit so that the cached video data can be easily retrieved for processing.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hau H. Nguyen whose telephone number is: 571-272-7787. The examiner can normally be reached on MON-FRI from 8:30-5:30.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kee Tung can be reached on (571) 272-7794.

The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

H. Nguyen

9/29/2006



KEE M. TUNG
SUPERVISORY PATENT EXAMINER